

Remarks

The Office Action confirmed the restriction requirement, rejected the claims under §§ 102 and 103, and raised a provisional double patenting issue. In view of the amendment above, the arguments below, and the enclosed terminal disclaimer, reconsideration is respectfully requested with respect to amended claims 1 and 3-9.

Supplemental Prior Art Statement

On February 6, 2003 a supplemental prior art statement was filed. Apparently it did not reach the examiner before the Office Action was mailed on February 19, 2003. Applicants request confirmation that the art recited in the supplemental prior art statement has been considered.

Restriction Requirement

Applicants hereby confirm the election of Group I (now claims 1 and 3-9), and hereby confirm the cancellation of claims 10-18, without prejudice to the filing of a divisional covering the restricted subject matter.

Inventorship

Applicants confirm that the restriction to Group I has not affected the inventorship.

§ 102/103 Issues

Claim 2 has been canceled in view of the amendments to claim 1. Claim 1 (and thus also claims 3-9) have now been amended to specify that the poly D-glucosamine is chitosan itself or a salt thereof (see Fig. 1 regarding chitosan), and that the formulation has sufficient chitosan/chitosan salt to be antimicrobial (see paragraph 34). As noted at paragraphs 32 and 33 of the specification, chitosan/chitosan salts are the preferred poly D-glucosamine because they are naturally occurring, or readily derived therefrom, hence available at low cost, non-toxic, biodegradable and a renewable resource, while still assisting antimicrobial activity. Further, as

noted at paragraph 34, the antimicrobial effects are not only marked in nature, they are of a lasting residual nature.

The Office Action relied on Lang et al. (U.S. patent 4,931,271), Garris (U.S. patent 5,776,876), or Cauwet et al. (U.S. patent 5,661,118), each individually, in support of the art rejections. These rejections are respectfully traversed to the extent that they would be applied to the amended claims 1 and 3-9.

None of these three references disclose formulas intended as hard surface cleaners. Lang et al. and Cauwet et al. are directed to treating soft surfaces such as hair or skin. Garris is directed to cleaning the soft fibers of a swimming pool filter. Hence, the references do not teach the "hard surface cleaner" limitation of the claims.

More importantly, the limitation of claim 1 (and now claims 3-9 via dependency) to chitosan itself and its salts turns whatever relevance these references might have had into teachings away. Lang et al. notes in column 1, beginning at line 46 that it is "necessary to put the chitosan to use in separate treatments, namely before and/or after the shampooing". This is a clear teaching that it is undesirable to develop a surfactant-based cleaner that uses something so directly like chitosan.

Moreover, chitosan and its salts are used on the hair or skin for their protective properties (see line 8 of page 2 of the specification). Hence these materials were perceived in the art as likely to leave a filmy surface residue, which is typically perceived as undesirable in a hard surface cleaner.

Also, the claims now require chitosan to be present in an amount effective to facilitate antimicrobial activity of the cleaner. Pages 7 and 8 of the specification describe evidence of those effects. Also, the antimicrobial effect is residual in nature (see page 8, lines 7-9 of the specification). That is particularly surprising.

The above comments affect the applicability of Cauwet et al., as well. Note that Cauwet et al. does not teach use of chitosan or a chitosan salt. Rather, it proposes use of a complex derivative having relatively high cost, where the material is used in the context of a hair cleaner. Again, Lang et al. would teach away from the pertinence of Cauwet et al. in a surfactant-based cleaner, much less one intended for hard surface cleaning.

With reference to Garris, the Office Action also fails to address why one would be motivated to use a filter related formulation as a hard surface cleaner, particularly given the reputation of chitosan for leaving a filmy surface residue. In any event, Garris only briefly refers to chitosan as part of a laundry list of chemicals, and then only as a builder or sequestrant. It nowhere teaches or suggests any antimicrobial property. The surprising antimicrobial effect due to use of chitosan or its salts, including without limitation the residual antimicrobial property, should overcome the purported pertinence of a teaching that chitosan can be used as a builder in a swimming pool filter cleaner.

The remaining references made of record and not relied upon are Franzke et al. (U.S. patent 6,068,383), Robinson (U.S. patent 5,968,485), Sebag et al. (U.S. patent 6,162,423), De La Mettrie (U.S. patent 6,387,855), and Meine et al. (U.S. patent 6,732,892).

Franzke et al. describes the use of chitosan as a polymer in a hair treatment composition. It nowhere teaches or suggests any antimicrobial property and again, Lang et al. would teach away from the pertinence of Franzke et al. in a surfactant-based cleaner, much less one intended for hard surface cleaning.

Robinson describes the use of the chitosan derivative hydroxypropyl chitosan as a thickening and gelling agent (col. 12, line 60) in UV protectants, and nowhere teaches or suggests any chitosan-based antimicrobial property.

De La Mettrie and Sebag et al. describe the use of an amphoteric surfactant comprising chitosans partially modified with C₄-C₈ dicarboxylic acids in a hair and/or skin product. Antimicrobial properties are not suggested and again, Lang et al. would teach away from the pertinence of Sebag et al. in a surfactant-based cleaner, much less one intended for hard surface cleaning.

Meine et al. describes the use of sodium chitosan methylene phosphonate complexing agents in food product cleaning compositions. Nowhere does this patent teach or suggest any chitosan-based antimicrobial property.

Provisional Double Patenting Issue

The enclosed terminal disclaimer should overcome any obviousness type double patenting issue vis a vis copending 10/035,318.

Conclusion

Claims 1 and 3-9 (as amended) are now believed to be in condition for allowance, and allowance is respectfully requested. Apart from a terminal disclaimer fee, no additional fees are believed to be required for entry of this amendment. However, should any additional fees be needed, please charge Deposit Account No. 17-0055 for the amount of the fees. In any event, please charge the terminal disclaimer fee to Deposit Account 17-0055.

Respectfully submitted,
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